Product Description

RNase R(Ribonuclease R)is a magnesium-dependent ribonuclease derived from the E.coli RNR superfamily, which completely hydrolyzes linear RNA in the 3'→5' direction into dinucleotides and trinucleotides. It is insensitive to circular RNA and double-stranded RNA, making it suitable for the production of specialized RNA structures such as circular RNA (circRNA), lariat RNA, double-stranded RNA with fewer than 7 nucleotides at the 3' protruding end, and structurally complex tRNAs. RNase R is widely used in gene expression and alternative splicing studies to digest linear RNA, thereby enriching circRNA or lariat RNA.

Components

Components	GMP-BP-E08-1K	GMP-BP-E08-10K	GMP-BP-E08-100K
	1 KU	10 KU	100 KU
RNase R GMP-grade(20 U/μL)	50 μL	500 μL	5 mL
10×RNase R Buffer	1 mL	10 mL	100 mL
RNase R Dilution Buffer	1 mL	10 mL	100 mL

Storage

Store at -20±5℃.

Product Information

Product Name	RNase R GMP-grade
Source	Recombinant *E.coli*
Activity	20 U/μL
Unit Definition	One unit(U) is defined as the amount of enzyme required to convert 1 μg of poly(A) into acid-soluble nucleotides within 10 minutes under standard reaction conditions at 37℃.
Storage Buffer	50 mM Tris-HCl(pH7.5 at 25℃), 100 mM NaCl, 0.1 mM EDTA, 1 mM DTT, 0.1%(v/v)Triton X-100, 50%(v/v)glycerol.
Reaction Buffer	200 mM Tris-HCl (pH 8.0 at 25℃), 1 M KCl, 1 mM $MgCl_2$

Quality control

1. Solution appearance: clear and transparent, free of visible particulate matter.
2. Activity>20 U/μL.
3. Protein purity≥95%.
4. Free of exogenous DNase, exonuclease, endonuclease activity and other RNase.
5. Residual host-cell DNA:≤100 pg/mg.
6. Residual host-cell protein: <50 ppm.
7. Heavy metals<10 ppm.
8. HBV, HCV, HIV, and mycoplasma: not detected.
9. Bacterial endotoxin: <5 EU/mL.
10. pH 7.0-8.0.

Recommended Digestion System:

Components	Volume
RNA	1 μg
10×RNase R Buffer	2 μL
RNase R GMP-grade	1-4 U/μg RNA
RNase-free ddH_2O	To 20 μL

Digestion at 37℃for 15 minutes, incubation at 70℃ for 10 minutes can inactivate the enzyme.

*When preparing the reaction system, RNase R (20 U/μL) can be diluted to an appropriate working concentration using RNase R Dilution Buffer. It is recommended to prepare and use immediately.

Application

Removal of linear RNA, enrichment of circRNA from biological samples, variable splicing studies, analysis and identification of intron loop sequences.

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Notes

1. The activity of RNase R requires 0.1-1 mM Mg^{2+}.
2. With the increase of substrate RNA, digestion time can be appropriately extended and enzyme amount can be increased.
3. The EDTA content in RNA samples may affect the activity of RNase R.
4. Some circRNAs or lasso-like RNA molecules may experience reduced abundance after prolonged RNase R digestion, likely due to their weak resistance to RNase R degradation. This can be addressed by reducing RNase R dosage or shortening digestion time.
5. Mix thoroughly before use and avoid repeated freeze-thaw cycles.